THERMOSETTING COMPOSITION FOR ELECTROCHEMICAL CELL COMPONENTS AND METHODS OF MAKING THEREOF

ABSTRACT OF THE DISCLOSURE

A conductive, moldable composite material for the manufacture of electrochemical cell components comprising a thermosetting resin system and conductive filler wherein the thermosetting resin composition comprises: (1) a polybutadiene or polyisoprene resin; (2) an optional functionalized liquid polybutadiene or polyisoprene resin; (3) an optional butadiene- or isoprene-containing copolymer; and (4) an optional low molecular weight polymer. In a preferred embodiment, the conductive moldable composite material is used to form a bipolar plate, current collector or other electrochemical cell component. Articles made of the conductive moldable composite material are resistant to chemical attack and hydrolysis, have excellent mechanical strength and toughness, have a volume resistivity of about 0.116 ohm-cm or less and preferably about 0.04 ohm-cm or less and a thermal conductivity of at least about 5 watts/meter °K.